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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/802,110	03/07/2001	James Leushner	VGEN.P-058-2	5580

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EXAMINER	
WILDER, CYNTHIA B	
ART UNIT	**PAPER NUMBER**
1637	21

DATE MAILED: 06/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/802,110	LEUSHNER et al.
Examiner	**Art Unit**
Cynthia B Wilder	1637

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 19, 2003* .

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *13-36* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *13-36* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Applicant's amendment filed in Paper No. 18 is acknowledged. Claim 13, 15, 16, 27 and 28 have been amended. Claims 13-36 are pending. All of the amendments and remarks have been thoroughly reviewed and considered but are deemed moot in view of the new ground(s) of rejections. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims.

Previous Rejections and Objections

2. The claim rejections under 35 USC 112 second paragraph have been withdrawn in view of Applicant's amendment of the claims. The double patenting rejections have been withdrawn in view of Applicant's submission of a proper terminal disclaimer under 37 CFR 1.321(c).

New Ground(s) of Rejection

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the Applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the Applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 13-16, 25-28 rejected under 35 U.S.C. 102(e) as being anticipated by Jordan (6,017,699, filed March 29, 1996). Regarding claims 13-16, and 25-28, Jordan teaches a kit consisting of, in package combination, region-specific reagents for a genomic DNA sample of a microorganism (col. 6, lines 55 to col. 7, line 4), wherein the region-specific reagents comprises a pair of primers which binds to the sense (coding) and antisense (noncoding) strands (col. 10, lines 7-17). The reference do not expressly state that the primers flank the target DNA regions within the genomic microorganism's DNA. However, this is deemed inherent in the teaching of the construction of the set of species-specific primers for PCR amplification (col. 5, lines 7-17 and Example 4 in it's entirety). Likewise it is commonly known in the art that in PCR amplification reactions, primers that bind to the sense and antisense strands of the target DNA sample also flank the target region to be amplified. Therefore, Jordan meets the limitations of claims 13-16 and 25-28.

5. Claims 13, 14, 16, 25-26, 28 are rejected under 35 U.S.C. 102(e) as being anticipated by. Vasta et al. (6,326,485, effective filing date July 26 1996). Regarding claims 13, 14, 16, 25-26 and 28, Vasta et al. discloses a kit consisting of, in a single container a region-specific reagent for a DNA region, wherein said region-specific reagents comprises a pair of primers which binds to the sense and antisense strands and flank the region of microorganism DNA (col. 12, lines 54-67 to col. 13, lines 4; see also col. 8, lines 30-34 and lines 65-67). Therefore, Vasta et al. meet the limitations of claims 13, 14, 16, 25-26 and 28.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 17-24 and 29-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruano (5,427,911, (patent date June 27, 1995) in view of Rao (Analytical Biochemistry, vol. 216, pages 1-14, (1994) and further in view of Ahern (The Scientist, Vol. 9, No. 15, pages 1-15, June 1995). Regarding claims 17-24 and 29-36, Rao et al. teach a method for sequencing genomic DNA sample, the method comprising amplifying in vitro with two locus specific primers that flank both ends of the target region to obtain a template, synthesizing simultaneously truncated strands from both ends of the template by introducing a dideoxynucleotide terminator for each of the four bases adenine, guanine, cytosine and thymine and introducing a label or labels specific for either or both

of the 5' ends of the synthesizing strands, thermally cycling steps to provide a sufficiently readable signal (col. 2, lines 3-23). Ruano further teaches wherein the dideoynucleotide triphosphate is in a mole ratio of about 1:10 to the corresponding deoxynucleotide triphosphate (col. 6, lines 47-68).

The reference of Ruano differs from the instant invention in that the reference does not teach wherein the method comprises the dideoxynucleotide triphosphate in a mole ratio of 1:50 to 1: 1000 or in a mole ratio of 1:1000 to 1: 500 to the corresponding deoxynucleotide triphosphates. Ruano also does not teach wherein the components of the method of sequencing is in the form of a kit.

In a method similar to that of Ruano, Rao teaches a method of direct sequencing of polymerase chain reaction-amplified DNA. Rao teaches wherein the method comprises mixing the PCR-amplified genomic DNA, labeled primer sequencing buffer and Taq polymerase in a tube, adding to the mixture in four separate tubes, four dNTPs and at least one dideoxynucleotide triphosphate, perform thermal cycling (see Table 3, page 5). Rao differs from the instant invention in that Rao does not teach wherein the mole ratio of the ddNTP:dNTP is from 1:50 to 1:1000 or 1:100 to 1:500. Rao also does not teach wherein the polymerase enzyme incorporates dNTPs into an extending nucleic acid polymerase at a rate which is no less than 0.5 times the rate of incorporation of dNTPs. However, Rao discloses that the composition of the dNTP/ddNTP mix varies depending on the type of polymerase preparation used. Rao additionally states that different polymerases require different dNTP/ddNTP ratios for optimal chain terminations and therefore,, the reagents or kits for one polymerase cannot be substituted with those for a different polymerase. Rao

further teaches that optimal buffer conditions for the synthesizing reaction will vary based on the specific DNA polymerase used (see Table 3 legend).

In a review article Ahern teaches the advantages of a kit. Ahern teaches that a kit provides convenience, time management and ease of practicing to the investigator (page 4, second-forth paragraphs). Therefore in view of the foregoing, one of ordinary skill in the art at the time of the claimed invention would have recognized that the mole ratio of reagents of the kit and polymerase extending ability may vary based on the chose of polymerase preparation used in the sequencing reaction and desired results as suggested by Rao. One of ordinary skill in the art at the time of the claimed invention would have been further motivated to have combined the components of the sequencing method as taught by Ruano and Rao in the form of a kit for the obvious benefits taught by Ahern that a kit provides convenience, time management and ease of practicing to the investigator.

Conclusion

8. No claims are allowed.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Cynthia Wilder whose telephone number is (703) 305-1680. The examiner can normally be reached on Monday through Thursday from 9:30 am to 6:30 pm and on Friday from 9:30 am to 1:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached at (703) 308-1119. The official fax phone number for the Group is (703) 308-4242. The unofficial fax number is (703) 308-8724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group's Patent Analyst, Monica Graves at (703) 305-3002 or Group's receptionist at (703) 308-0196.

Cynthia B. Wilder, Ph.D.

June 16, 2003

KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER

6/16/03